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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/701,753	12/01/2000	Isao Kawahara	NAKI-BN21	8014

7590

02/13/2003

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EXAMINER

LEWIS, DAVID LEE

ART UNIT

PAPER NUMBER

2673

DATE MAILED: 02/13/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 09/701,753	Applicant(s) Kawahara	
	Examiner David L. Lewis	Art Unit 2673	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Dec 1, 2000
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-45 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-45 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- *See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

- a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s). <u>4 and 5</u> | 6) <input type="checkbox"/> Other: |

DETAILED ACTION

Claim Rejections - 35 U.S.C. § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

2. **Claims 1-4 are rejected under 35 U.S.C. 102(e) as being anticipated by Hirakawa et al. (6097358).**

3. **As in claim 1, Hirakawa et al. teaches of an image display apparatus, in which a current TV field period is divided into a plurality of sub-fields that are respectively given luminance weights and are arranged in order of time, column 5 lines 50-60, and a gray-scale image, column 1 lines 50-55, for the current TV field period is displayed by selecting a combination of sub-fields for each pixel and sustaining a light emission state in each pixel during the selected sub-fields, column 3 lines 54-60,**

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characterized in that when arranged in ascending order of luminance weight, the plurality of sub-fields include at least one sub-field whose luminance weight is smaller than one-half of a luminance weight of the next sub-field, **figure 3, column 8 lines 1-20**. Wherein the luminance weight ascends from the value of "1" to "6", between SF5 and SF6, and from the value of "6" to "36", between SF10 and SF11.

4. **As in claim 2, Hirakawa et al. teaches of** an image display apparatus, in which a current TV field period is divided into a plurality of sub-fields that are respectively given luminance weights and are arranged in order of time, **column 5 lines 50-60**, and a gray-scale image for the current TV field period is displayed by selecting a combination of sub-fields for each pixel and sustaining a light emission state in each pixel during the selected sub-fields, **column 3 lines 54-60**, characterized in that when the plurality of sub-fields are arranged in ascending order of luminance weight with an "i"th smallest luminance weight being denoted by W_i , the plurality of sub-fields are respectively given such luminance weights that "n" exists where $W_1 + W_1 + W_2 + \dots + W_n < W_{n+1}$, **figure 3, column 8 lines 1-20**. Wherein the luminance weight ascends from the value of "1" to "6", between SF5 and SF6, and from the value of "6" to "36", between SF10 and SF11. And SF1 to SF5 have a weight value of 1 and SF6 to SF10 have a weight value of 6, and SF11 to SF16 have a weight value of 36.

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5. **As in claim 3, Hirakawa et al. teaches of an image display apparatus, in which a current TV field period is divided into a plurality of sub-fields that are respectively given luminance weights and are arranged in order of time, column 5 lines 50-60, and a gray-scale image for the current TV field period is displayed by selecting a combination of sub-fields for each pixel and sustaining a light emission state in each pixel during the selected sub-fields, column 3 lines 54-60, characterized in that when the plurality of sub-fields are arranged in ascending order of luminance weight with a "j"th smallest luminance weight being denoted by W_j , the plurality of sub-fields are respectively given such luminance weights that "n" and at least two "l"s exist where $W_l + W_{l+1} + W_{l+2} + \dots + W_n < W_{n+1}$, figure 3, column 8 lines 1-20.** Wherein the luminance weight ascends from the value of "1" to "6", between SF5 and SF6, and from the value of "6" to "36", between SF10 and SF11. And SF1 to SF5 have a weight value of 1 and SF6 to SF10 have a weight value of 6, and SF11 to SF16 have a weight value of 36.
6. **As in claim 4, Hirakawa et al. teaches of an image display apparatus, in which a current TV field period is divided into a plurality of sub-fields that are respectively given luminance weights and are arranged in order of time, column 5 lines 50-60, and a gray-scale image for the current TV field period is displayed by selecting a combination of sub-fields for each pixel and sustaining a light emission state in each pixel during the selected sub-fields, column 5 lines 50-67, wherein a coding pattern that specifies a sum of luminance weights of all sub-fields in the current TV field period is**

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determined in accordance with a characteristic of input pixel image signals corresponding to the image of the current TV field period, characterized in that when a reference TV field period is divided into a plurality of sub-fields that are respectively given luminance weights, **figure 3 items SFG1, SFG2, and SFG3**, and a ratio of the sum of luminance weights of all sub-fields in the current TV field period to a sum of luminance weights of all subfields in the reference TV field period is denoted by K, the current TV field period includes (a) one or more sub-fields whose luminance weights are obtained by multiplying luminance weights of predetermined subfields in the reference TV field period, respectively by coefficients no greater than K, and, **column 8 lines 1-23**, (b) one or more sub-fields whose luminance weights are obtained by multiplying luminance weights of predetermined subfields in the reference TV field period, respectively by coefficients greater than K, **column 8 lines 1-23, figure 3**. Wherein respective weights of luminance are integer multiples of the of the minimum weight 1 and equal to one plus the total sum of the weights smaller than themselves. Further wherein figure 3 denotes plurality of reference TV field periods.

7. **Claims 4, 32-40, and 45 are rejected under 35 U.S.C. 102(e) as being anticipated by Kasahara et al. (2002/0005857 A1).**
8. **As in claim 4, Kasahara et al. teaches of an image display apparatus, in which a current TV field period is divided into a plurality of sub-fields that are respectively given luminance weights and are**

Title: Image Display

arranged in order of time, **figure 4**, and a gray-scale image for the current TV field period is displayed by selecting a combination of sub-fields for each pixel and sustaining a light emission state in each pixel during the selected sub-fields, **figure 11 item 34**, wherein a coding pattern that specifies a sum of luminance weights of all sub-fields in the current TV field period is determined in accordance with a characteristic of input pixel image signals corresponding to the image of the current TV field period, characterized in that when a reference TV field period is divided into a plurality of sub-fields that are respectively given luminance weights, and a ratio of the sum of luminance weights of all sub-fields in the current TV field period to a sum of luminance weights of all subfields in the reference TV field period is denoted by K, **page 12 paragraph 129 and 135**, the current TV field period includes (a) one or more sub-fields whose luminance weights are obtained by multiplying luminance weights of predetermined subfields in the reference TV field period, respectively by coefficients no greater than K, and, **page 12 paragraph 129 and 135**, (b) one or more sub-fields whose luminance weights are obtained by multiplying luminance weights of predetermined subfields in the reference TV field period, respectively by coefficients greater than K, **page 10 paragraph 106, page 11 paragraph 116 and 117, page 12 paragraph 129 and 135**. Wherein respective weights of luminance are integer multiples of the weight multiplier N, and the current and reference field are produced by a field delay figure 11 item 11.

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9. **As in claims 32-35, Kasahara et al.** teaches of a an image display apparatus, in which a current TV field period is divided into a plurality of sub-fields that are respectively given luminance weights and are arranged in order of time, **figure 4**, and a gray-scale image for the current TV field period is displayed by coding input pixel image signals using different coding modes that are switched in accordance with an amount of movement from an image of a past TV field period to the image of the current TV field period, **page 11 paragraph 114, figure 11 item 42**, wherein a combination of sub-fields is selected for each pixel depending on the amount of movement, and a light emission state is sustained in each pixel during the selected sub-fields, characterized in that the different coding modes are interspersedly applied to input pixel image signals that correspond to an image area where switching between the different coding modes is needed and that show a predetermined characteristic, **page 11 paragraphs 116-119, figures 11 and 12, wherein** a signal used for switching between the different coding modes is arbitrarily space modulated, regularly space modulated, and assumes a shape that contains a zigzag, **figures 14-17**, wherein Kasahara teaches of adjustment according to said variety of pixel patterns that correspond to an image area where the switching between the different coding modes is needed, **page 14 paragraph 160, and excluding areas not in need of adjustment, figure 19 and 20. As in claims 36-38, Kasahara et al.** teaches of a said variety of patterns, **page 11 paragraph 126, 127, 131, 155, 163. As in claims 45, Kasahara et al.** teaches of wherein the input image signals that show the predetermined characteristic corresponds to a non-edge image area, figure 21.

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10. **As in claims 39, Kasahara et al.** teaches of an image display apparatus, in which a current TV field period is divided into a plurality of sub-fields that are respectively given luminance weights and are arranged in order of time, **figure 4**, and a gray-scale image for the current TV field period is displayed by coding input pixel image signals using different coding modes which are switched in accordance with an amount of movement from an image of a past TV field period to the image of the current TV field period, **figure 11 item 42**, wherein a combination of sub-fields is selected for each pixel depending on the amount of movement, **figure 11 item 42**, and a light emission state is sustained in each pixel during the selected sub-fields, characterized in that a modulation signal having periodicity corresponding to no smaller than a pixel interval is applied to input pixel image signals that correspond to an image area where switching between the different coding modes is needed, **page 13 paragraph 155, page 14 paragraph 163**.
11. **As in claim 40, Kasahara et al.** teaches of an image display apparatus, in which a current TV field period is divided into a plurality of sub-fields that are respectively given luminance weights and are arranged in order of time, **figure 4**, and a gray-scale image for the current TV field period is displayed by coding input pixel image signals using different coding modes which are switched in accordance with an amount of movement from an image of a past TV field period to the image of the current TV field period, **figure 11 item 42**, wherein a combination of sub-fields is selected for each pixel

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depending on the amount of movement, **figure 11 item 42**, and a light emission state is sustained in each pixel during the selected sub-fields, characterized in that input pixel images signals corresponding to an image area where switching between the different coding modes is needed are modulated to shift a display position of the image area, **page 13 paragraph 155, page 14 paragraph 163**.

Claim Rejections - 35 U.S.C. § 112

12. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

13. **Claims 4-11, 13-15, 17-19, 21-23, 25-27, 30, 31, 41-44** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 4 fails to define the range for the values of K.

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Art Unit: 2673
Applicant: Kawahara

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Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. 6335735 B1, 2001/0028347 A1, 6310588 B1, 6348930 B1, 6414657 B1.
15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **David L. Lewis** whose telephone number is **(703) 306-3026**. The examiner can normally be reached on MT and THF from 8 to 5. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala, can be reached on (703) 305-4938. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-3900.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.



BIPIN SHALWALA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

Examiner: David L. Lewis

February 10, 2003